

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An implantable medical device for detection of changes in physiologic parameters, comprising:

~~means for generating measured physiologic parameters, the measured physiologic parameters being one of pressure, heart rate variability and activity level;~~

means for generating an adaptive baseline trend of the measured physiologic parameters corresponding to a first time period;

means for generating a short term trend of the measured physiologic parameters corresponding to a second time period less than the first time period;

~~means for generating a metric of physiologic parameter change between the adaptive baseline trend and one of a most recent measured physiologic parameter and the short term trend of the measured physiologic parameters;~~

~~means for updating one of the adaptive baseline trend and the short term trend, the one of the adaptive baseline trend and the short term trend being updated by a first variable in response to the measured physiologic parameters being pressure, updated by a second variable not equal to the first variable in response to the measured physiologic parameters being heart rate variability, and updated by a third variable not equal to the first variable and the second variable in response to the measured physiologic parameters being activity level~~

means for determining changes in relative position of the short term trend and the baseline trend, the determined changes in relative position corresponding to determining intersecting of the baseline trend by the short term trend;

means for determining differences between the baseline trend and the generated measured physiologic parameters;

means for accumulating, in response to determining no intersecting of the baseline trend by the short term trend, the determined differences between the baseline trend and the generated measured physiologic parameters; and

means for detecting one of slowly declining changes and slowly increasing changes in the generated measured physiologic parameters in response to the accumulated determined differences.

- 2-4. (Canceled)
5. (Original) The implantable medical device of claim 1, wherein the adaptive baseline trend is initially generated using a first computation scheme and is subsequently generated using a second computation scheme different from the first computation scheme.
6. (Original) The implantable medical device of claim 5, wherein the first computation scheme is performed at a first rate and the second computation scheme is performed at a second rate less than the first rate.
7. (Original) The implantable medical device of claim 6, wherein the first rate is computed in response to a predetermined number of the generated measured physiologic parameters.
8. (Original) The implantable medical device of claim 1, wherein the short term trend is initially generated using a first computation scheme and is subsequently generated using a second computation scheme different from the first computation scheme.

9. (Original) The implantable medical device of claim 8, wherein the first computation scheme is performed at a first rate and the second computation scheme is performed at a second rate less than the first rate.
10. (Original) The implantable medical device of claim 9, wherein the first rate is computed in response to a predetermined number of the generated measured physiologic parameters.
11. (Canceled)
12. (Canceled)
13. (Original) The implantable medical device of claim 1, further comprising means for updating the short term trend by generating a weighted sum of the short term trend for two previous days and the measured physiologic parameter generated for the current day and the two previous days.
14. (Currently Amended) An implantable medical device for detection of changes in physiologic parameters, comprising:
 - means for generating measured physiologic parameters, ~~the measured physiological parameters being one of pressure, heart rate variability and activity level;~~
 - means for generating an adaptive baseline trend of the measured physiologic parameters corresponding to a first time period;
 - means for generating a short term trend of the measured physiologic parameters corresponding to a second time period less than the first time period;
 - means for generating a metric of physiologic parameter change between the adaptive baseline trend and one of a most recent measured

physiologic parameter and the short term trend of the measured physiologic parameters; and

means for updating the adaptive baseline trend by setting the adaptive baseline trend equal to a previous adaptive baseline trend reduced by a predetermined downdrift in response to the current adaptive baseline trend being greater than the current short term trend, and by setting the adaptive baseline trend equal to the previous adaptive baseline trend increased by a predetermined updrift in response to the current adaptive baseline trend being less than the current short term trend, the downdrift and the updrift having respective first values in response to a decline in the measured physiologic parameters being pressure, associated with decomposition, and respective second values different from the first values in response to an increase in the measured physiologic parameters being ~~heart rate variability, and respective third values different from the first values and the second values in response to the measured physiologic parameters being activity level~~ associated with decomposition.

15. (Canceled)
16. (Original) The implantable medical device of claim 1, wherein the measured physiologic parameters are generated a predetermined number of days prior to generation of the adaptive baseline trend and the short term trend.
17. (Currently Amended) A method for detection of changes in physiologic parameters a patient, comprising:

generating measured physiologic parameters, ~~the measured physiologic parameters being one of pressure, heart rate variability and activity level;~~

generating an adaptive baseline trend of the measured physiologic parameters corresponding to a first time period;

generating a short term trend of the measured physiologic parameters corresponding to a second time period less than the first time period;

~~generating a metric of physiologic parameter change between the adaptive baseline trend and one of a most recent measured physiologic parameter and the short term trend of the measured physiologic parameters; and~~

~~updating one of the adaptive baseline trend and the short term trend, the one of the adaptive baseline trend and the short term trend being updated by a first variable in response to the measured physiologic parameters being pressure, updated by a second variable not equal to the first variable in response to the measured physiologic parameters being heart rate variability, and updated by a third variable not equal to the first variable and the second variable in response to the measured physiologic parameters being activity level~~

determining changes in relative position of the short term trend and the baseline trend, the determined changes in relative position corresponding to determining intersecting of the baseline trend by the short term trend;

determining differences between the baseline trend and the generated measured physiologic parameters;

accumulating, in response to determining no intersecting of the baseline trend by the short term trend, the determined differences between the baseline trend and the generated measured physiologic parameters; and

detecting one of slowly declining changes and slowing increasing changes in the generated measured physiologic parameters in response to the accumulated determined differences.

- 18-20. (Canceled)
21. (Original) The method of claim 17, wherein the adaptive baseline trend is initially generated using a first computation scheme and is subsequently generated using a second computation scheme different from the first computation scheme.
22. (Original) The method of claim 21, wherein the first computation scheme is performed at a first rate and the second computation scheme is performed at a second rate less than the first rate.
23. (Original) The method of claim 22, wherein the first rate is computed in response to a predetermined number of the generated measured physiologic parameters.
24. (Original) The method of claim 17, wherein the short term trend is initially generated using a first computation scheme and is subsequently generated using a second computation scheme different from the first computation scheme.
25. (Original) The method of claim 24, wherein the first computation scheme is performed at a first rate and the second computation scheme is performed at a second rate less than the first rate.
26. (Original) The method of claim 25, wherein the first rate is computed in response to a predetermined number of the generated measured physiologic parameters.
27. (Canceled)
28. (Canceled)
29. (Original) The method of claim 17, further comprising updating the short term trend by generating a weighted sum of the short term trend for

two previous days and the measured physiologic parameter generated for the current day and the two previous days.

30. (Currently Amended) A method for detection of changes in physiologic parameters a patient, comprising:

generating measured physiologic parameters, ~~the measured physiologic parameters being one of pressure, heart rate variability and activity level;~~

generating an adaptive baseline trend of the measured physiologic parameters corresponding to a first time period;

generating a short term trend of the measured physiologic parameters corresponding to a second time period less than the first time period;

generating a metric of physiologic parameter change between the adaptive baseline trend and one of a most recent measured physiologic parameter and the short term trend of the measured physiologic parameters; and

updating the adaptive baseline trend by setting the adaptive baseline trend equal to a previous adaptive baseline trend reduced by a predetermined downdrift in response to the current adaptive baseline trend being greater than the current short term trend, and by setting the adaptive baseline trend equal to the previous adaptive baseline trend increased by a predetermined updrift in response to the current adaptive baseline trend being less than the current short term trend, the downdrift and the updrift having respective first values in response to a decline in the measured physiologic parameters being ~~pressure,~~ associated with decomposition, and respective second values different from the first values in response to an increase in the measured physiologic parameters being ~~heart rate variability,~~ and respective third values different from the first values and the second values in response to the measured physiologic parameters being ~~activity level~~ associated with decomposition.

31. (Canceled)
32. (Original) The method of claim 20, wherein the measured physiologic parameters are generated a predetermined number of days prior to generation of the adaptive baseline trend and the short term trend.
33. (Canceled)
34. (Currently Amended) An implantable medical device for detection of changes in physiologic parameters, comprising:
- means for generating measured physiologic parameters, ~~the measured physiologic parameters being one of pressure, heart rate variability and activity level;~~
- means for generating an adaptive baseline trend of the measured physiologic parameters corresponding to a first time period;
- means for generating a short term trend of the measured physiologic parameters corresponding to a second time period less than the first time period;
- means for generating a metric of physiologic parameter change between the adaptive baseline trend and one of a most recent measured physiologic parameter and the short term trend of the measured physiologic parameters;
- ~~means for comparing the metric of physiologic parameter change to a predetermined threshold and determining corresponding significant events in response to the comparing; and~~
- ~~means for updating one of the adaptive baseline trend and the short term trend, the one of the adaptive baseline trend and the short term trend being updated by a first variable in response to the measured physiologic parameters being pressure, updated by a second variable not equal to the first variable in response to the measured physiologic parameters being~~

~~heart rate variability, and updated by a third variable not equal to the first variable and the second variable in response to the measured physiologic parameters being activity level~~

means for determining changes in relative position of the short term trend and the baseline trend, the determined changes in relative position corresponding to determining intersecting of the baseline trend by the short term trend;

means for determining differences between the baseline trend and the generated measured physiologic parameters;

means for accumulating, in response to determining no intersecting of the baseline trend by the short term trend, the determined differences between the baseline trend and the generated measured physiologic parameters;

means for detecting one of slowly declining changes and slowly increasing changes in the generated measured physiologic parameters in response to the accumulated determine; and

means for determining corresponding significant events in response to the detecting one of slowly declining changes and slowing increasing changes in the generated measured physiologic parameters, wherein the significant events include one of storing data within the implantable medical device, apply or modifying a delivered therapy, notifying the patient, notifying medical personnel, and modifying frequency of physiologic parameter measurement, and wherein the determined significant events are subsequently terminated in response to the short term trend being equal to the adaptive baseline trend.

38. (Original) The implantable medical device of claim 34, wherein the adaptive baseline trend is initially generated using a first computation scheme and is subsequently generated using a second computation scheme different from the first computation scheme.
39. (Original) The implantable medical device of claim 38, wherein the first computation scheme is performed at a first rate and the second computation scheme is performed at a second rate less than the first rate.
40. (Original) The implantable medical device of claim 39, wherein the first rate is computed in response to a predetermined number of the generated measured physiologic parameters.
41. (Original) The implantable medical device of claim 34, wherein the short term trend is initially generated using a first computation scheme and is subsequently generated using a second computation scheme different from the first computation scheme.
42. (Original) The implantable medical device of claim 41, wherein the first computation scheme is performed at a first rate and the second computation scheme is performed at a second rate less than the first rate.
43. (Original) The implantable medical device of claim 42, wherein the first rate is computed in response to a predetermined number of the generated measured physiologic parameters.
44. (Canceled)
45. (Canceled)
46. (Original) The implantable medical device of claim 34, further comprising means for updating the short term trend by generating a weighted sum of the short term trend for two previous days and the

measured physiologic parameter generated for the current day and the two previous days.

47. (Canceled)

48. (Canceled)

49. (Original) The implantable medical device of claim 34, wherein the measured physiologic parameters are generated a predetermined number of days prior to generation of the adaptive baseline trend and the short term trend.

50. (Currently Amended) A computer readable medium having computer executable instructions for performing a method comprising:

generating measured physiologic parameters, ~~the measured physiologic parameters being one of pressure, heart rate variability and activity level;~~

generating an adaptive baseline trend of the measured physiologic parameters corresponding to a first time period;

generating a short term trend of the measured physiologic parameters corresponding to a second time period less than the first time period;

~~generating a metric of physiologic parameter change between the adaptive baseline trend and one of a most recent measured physiologic parameter and the short term trend of the measured physiologic parameters; and~~

~~updating one of the adaptive baseline trend and the short term trend, the one of the adaptive baseline trend and the short term trend being updated by a first variable in response to the measured physiologic parameters being pressure, updated by a second variable not equal to the first~~

~~variable in response to the measured physiologic parameters being heart rate variability, and updated by a third variable not equal to the first variable and the second variable in response to the measured physiologic parameters being activity level~~

determining changes in relative position of the short term trend and the baseline trend, the determined changes in relative position corresponding to determining intersecting of the baseline trend by the short term trend;

determining differences between the baseline trend and the generated measured physiologic parameters;

accumulating, in response to determining no intersecting of the baseline trend by the short term trend, the determined differences between the baseline trend and the generated measured physiologic parameters; and

detecting one of slowly declining changes and slowly increasing changes in the generated measured physiologic parameters in response to the accumulated determined differences.

51. (Canceled)
52. (Original) The implantable medical device of claim 14, wherein the updrift is greater than the downdrift.
53. (Original) The implantable medical device of claim 14, wherein the downdrift is greater than the updrift.
54. (Original) The method of claim 30, wherein the updrift is greater than the downdrift.
55. (Original) The method of claim 30, wherein the downdrift is greater than the updrift.

56-58. (Canceled)

59. (Currently Amended) The implantable medical device of claim 1, further comprising means for ~~comparing the metric of physiologic parameter change to a predetermined threshold and~~ determining corresponding significant events in response to the comparing ~~detecting~~ one of slowly declining and slowly increasing changes.
60. (Previously Presented) The implantable medical device of claim 59, wherein the significant events include one of storing data within the implantable medical device, apply or modifying a delivered therapy, notifying the patient, notifying medical personnel, and modifying frequency of physiologic parameter measurement.
61. (Currently Amended) The method of claim 17, further comprising ~~comparing the metric of physiologic parameter change to a predetermined threshold and~~ determining corresponding significant events in response to the ~~comparing~~ ~~detecting one of slowly declining and slowing increasing changes.~~
62. (Previously Presented) The method of claim 61, wherein the significant events include one of storing data within the implantable medical device, apply or modifying a delivered therapy, notifying the patient, notifying medical personnel, and modifying frequency of physiologic parameter measurement.
63. (Previously Presented) The method of claim 62, wherein the determined significant events are subsequently terminated in response to the short term trend being equal to the adaptive baseline trend.